

WHAT IS CLAIMED IS:

1. A system for the capture and destruction of organic hazardous agents (bio-agents) comprising:

- a) circulating means for circulating a gas;
- b) at least one filter containing a bed of material for capturing bio-agents and placed so that air is passed through the bed prior to being passed to an enclosed space; and
- c) destruction means for destroying the bio-agents captured on the bed.

2. The system of claim 1, wherein the destruction means is a steam/carbon dioxide reformer.

3. The system of claim 2, further comprising another filter containing another bed of the material for use while a first bed of a first filter is undergoing steam/carbon dioxide reforming.

4. The system of claim 1, wherein the material for capturing bio-agents is granular activated carbon (GAC).

5. A system for the capture and destruction of bio-agents comprising:

- a) a building having a plurality of enclosed spaces;
- b) circulating means for circulating a gas;
- c) at least one filter containing at least one bed of granular activated carbon (GAC) and placed so that air is circulated through the GAC bed prior to being passed to each of the enclosed spaces;

d) a biosensor within each of the enclosed spaces for detecting and warning any building occupants of a release of bio-agents;

f) means for sealing off each of the enclosed spaces after sufficient evacuation time; and

g) a steam/carbon dioxide reformer for reactivating the GAC bed to destroy the bio-agents adsorbed on the GAC bed.

6. The system of claim 5, further comprising a second filter containing a second GAC bed for use while a first GAC bed of a first filter is undergoing steam/carbon dioxide reforming.

7. The system of claim 5, further comprising a second filter containing a second GAC bed placed in series with a first filter containing a first GAC bed to assure capture of substantially all of the bio-agents.

8. The system of claim 7, further comprising a third filter containing a third GAC bed for use while the first GAC bed is undergoing steam/carbon dioxide reforming.

9. The system of claim 5, further comprising a plurality of rooms having means for sealing off each room from each of the other rooms.

10. The system of claim 9, wherein a fire door is used to seal off each room from each of the other rooms.

11. The system of claim 10, further comprising an emergency controller means operably connected to said biosensor and said fire door to cause the fire door to close upon the sensing of a bio-agent within the room.

12. The system of claim 5, wherein said gas is air during an in-service operation.

13. The system of claim 5, wherein said gas is steam or a steam and syn-gas mixture during a reactivation operation.

14. The system of claim 13, wherein the steam or steam and syn-gas mixture is superheated.

15. The system of claim 5, wherein said circulation means is a blower.
16. The system of claim 5, wherein said steam/carbon dioxide reforming takes place at temperatures of at least 1800°F.
17. The system of claim 5, wherein said filter contains a sufficient amount of GAC to prevent a breakthrough of a bio-agent spike from the GAC bed into any enclosed space during the time required by the biosensor to detect and confirm a release of the bio-agent and to warn the building occupants.
18. The system of claim 17, wherein said filter contains about 100 tons of GAC.
19. The method of capturing and destroying organic hazardous agents (bio-agents) comprising:
- a) passing air through at least one filter containing a bed of material for capturing bio-agents;
 - b) circulating the filtered air to a building having a plurality of enclosed spaces during an in-service operation;
 - c) detecting a release of bio-agents with a biosensor located within the enclosed spaces;
 - d) adsorbing on a filter bed bio-agents present in the air prior to the air being passed to the enclosed space;
 - e) sealing off the circulation of air from the enclosed space in which a bio-agent has been detected from the other enclosed spaces after a sufficient evacuation time has elapsed;
 - f) passing steam and syn-gas through the at least one filter if the biosensor detects a release of bio-agents; and
 - g) circulating the steam and syn-gas mixture from the at least one filter to a steam/carbon dioxide reformer to destroy any of the bio-agents that have been adsorbed on a filter bed after a release of a bio-agent has been detected during a reactivation operation.

20. The method of claim 19, wherein the material for capturing bio-agents is granular activated carbon (GAC).

21. The method of claim 19, further comprising passing the air through a second filter containing a second bed for use while the bed of a first filter is undergoing the reactivation operation.

22. The method of claim 19, further comprising passing the air through a second filter containing a second bed placed in series with a first filter containing a first bed to assure capture of substantially all of the bio-agents.

23. The method of claim 19, further comprising passing the air through a third filter containing a third bed for use while the first bed is undergoing steam/carbon dioxide re forming.

24. The method of claim 19, wherein the steam and syn-gas mixture is superheated.

25. The method of claim 19, wherein said steam/carbon dioxide reforming takes place at temperatures of at least 1800°F.

26. The method of claim 20, wherein the biosensor warns occupants of the building of any release of bio-agents.

27. The method of claim 26, wherein said filter contains a sufficient amount of GAC to prevent a breakthrough of a bio-agent spike from the GAC bed into any enclosed space during the time required by the biosensor to detect and confirm a release of bio-agents and to warn the building occupants.

28. The method of claim 27, wherein said filter contains about 100 tons of GAC.